

5-15-09 IB

**Multiple Choice***Identify the choice that best completes the statement or answers the question.***Solve the equation.**D

1.  $18 = -d + 10$

a. 8

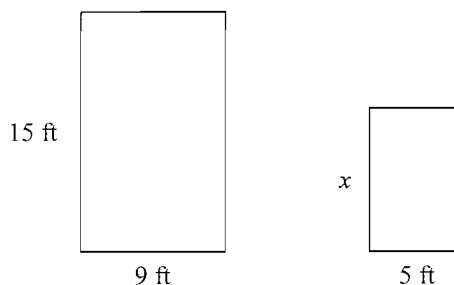
b. -13

c. 6

d. -8

**The pair of figures is similar. Find  $x$ . Round to the nearest tenth if necessary.**D

2.



Drawing not to scale

a. 1.8 ft

b. 0.3 ft

c. 3 ft

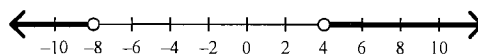
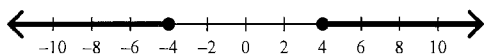
d. 8.3 ft

**Solve the inequality. Then graph your solution.**D

3.  $|d + 2| \geq 6$

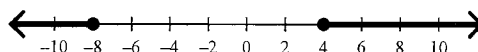
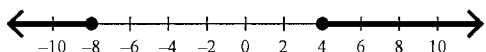
a.  $d \leq -4$  or  $d \geq 4$

c.  $d \leq -8$  or  $d \geq 4$



b.  $d \geq -8$  or  $d \geq 4$

d.  $d \leq -8$  or  $d \geq 4$

**Find the slope of the line that passes through the pair of points.**B

4.  $(1, 7), (10, 1)$

a.  $\frac{3}{2}$

b.  $-\frac{2}{3}$

c.  $-\frac{3}{2}$

d.  $\frac{2}{3}$

Solve the system of equations using substitution.

D

$$5. \begin{aligned} 3x + 2y &= 7 \\ y &= -3x + 11 \end{aligned}$$

a.  $(6, -3)$

b.  $(6, -7)$

c.  $\left(-4, \frac{19}{2}\right)$

d.  $(5, -4)$

Solve the system using elimination.

C

$$6. \begin{aligned} 2x - 2y &= -8 \\ x + 2y &= -1 \end{aligned}$$

a.  $(-14, 1)$

b.  $(1, 5)$

c.  $(-3, 1)$

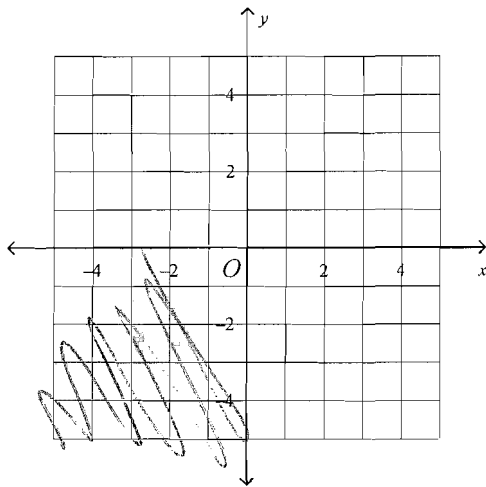
d.  $(0, 4)$

Solve the system of linear inequalities by graphing.

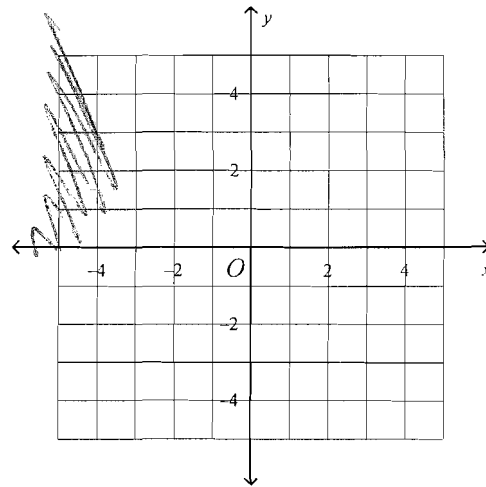
A

$$7. \begin{aligned} y &\leq x + 4 \\ 2x + y &\leq -4 \end{aligned}$$

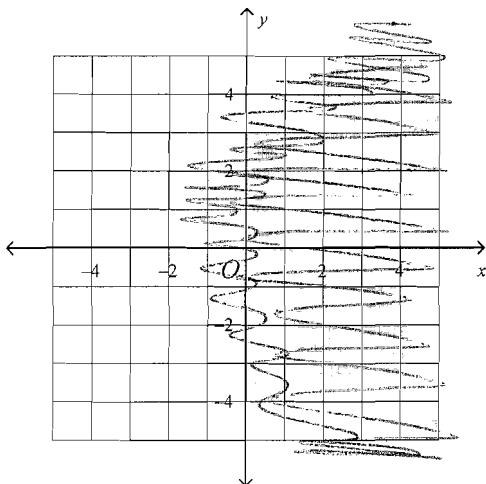
a.



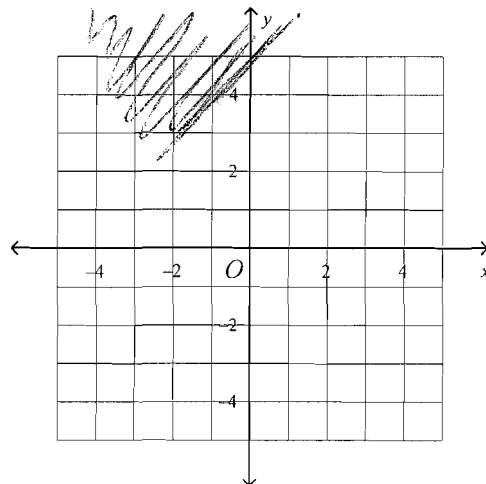
c.



b.



d.



B

8. Order the group of quadratic functions from widest to narrowest graph.

$$y = -7x^2, y = -\frac{1}{5}x^2, y = -\frac{1}{3}x^2$$

a.  $y = -\frac{1}{3}x^2, y = -\frac{1}{5}x^2, y = -7x^2$

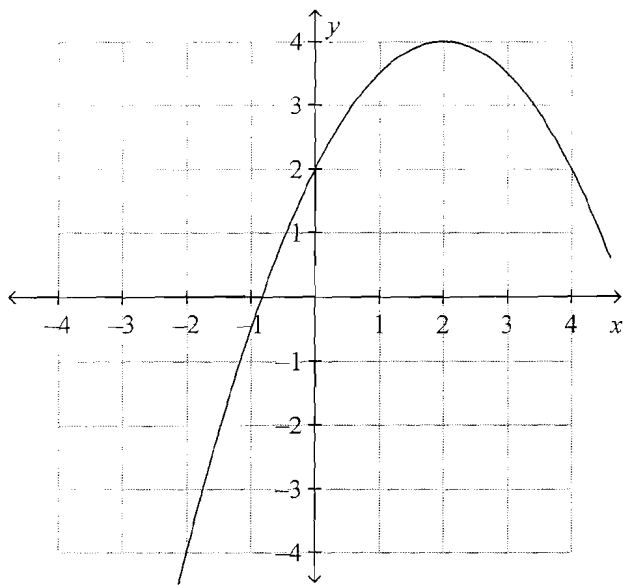
c.  $y = -7x^2, y = -\frac{1}{3}x^2, y = -\frac{1}{5}x^2$

b.  $y = -\frac{1}{5}x^2, y = -\frac{1}{3}x^2, y = -7x^2$

d.  $y = -\frac{1}{5}x^2, y = -7x^2, y = -\frac{1}{3}x^2$

C

9. Identify the vertex of the graph. Tell whether it is a minimum or maximum.



a. (4, 2); minimum

c. (2, 4); maximum

b. (2, 4); minimum

d. (4, 2); maximum

C

10. A ball is thrown into the air with an upward velocity of 36 ft/s. Its height
- $h$
- in feet after
- $t$
- seconds is given by the function
- $h = -16t^2 + 36t + 5$
- .

a. What is the ball's maximum height?

a. 27.5 ft

b. 65.75 ft

c. 25.25 ft

d. 5 ft

Use the quadratic formula to solve the equation. If necessary, round to the nearest hundredth.

D

11.  $y^2 + 7y = -11$

a. -4.76, -9.24

b. 4.62, 2.38

c. -1, -6

d. -2.38, -4.62

Simplify the expression.

D

12.  $(-8.6)^0$

a. -1

b. 0

c. -8.6

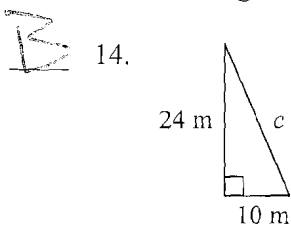
d. 1

Name: \_\_\_\_\_

ID: A

- C 13.  $(4)^{-2}$
- a.  $-\frac{1}{16}$       b. 16      c.  $\frac{1}{16}$       d. -8

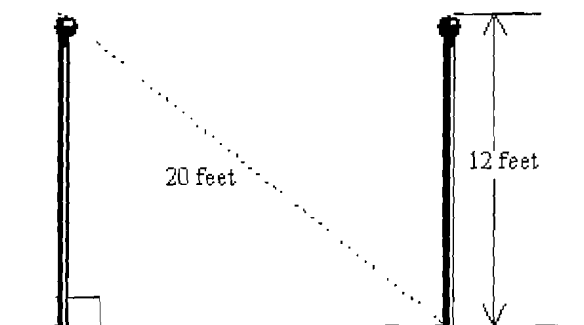
In the given right triangle, find the missing length.



Not drawn to scale

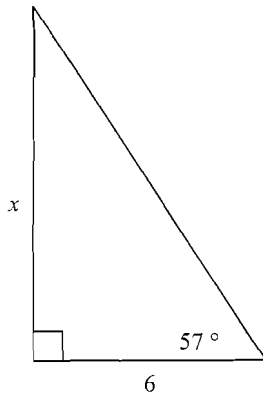
- a. 28 m      b. 26 m      c. 25 m      d. 27 m

- A 15. Two flag poles in front of the Court House are 12 ft tall. The distance from the top of one pole to the base of the other as shown in the diagram is 20 ft. What is the distance between the two flag poles?

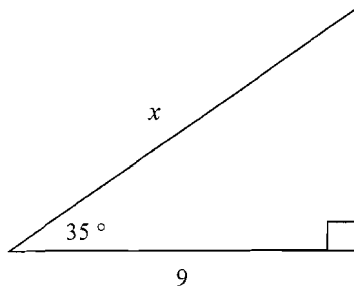


- a. 16 ft      b. 23 ft      c. 18 ft      d. 15 ft

- B 16. Which of the following could NOT be the lengths of the sides of a right triangle?
- a. 9 ft, 12 ft, 15 ft      c. 4 cm, 7.5 cm, 8.5 cm
- b. 5 in., 10 in., 15 in.      d. 1.5 m, 2 m, 2.5 m

Find the value of  $x$  to the nearest tenth.C 17.

- a. 2.9                      b. 3.3                      c. 9.2                      d. 5

C 18.

- a. 12.9                      b. 6.3                      c. 11                      d. -10

- D 19. Suppose you live 4.4 miles from a hill. From your home you see a plane directly above the hill. Your angle of elevation to the plane is  $30^\circ$ . What is the plane's altitude?
- a. -28.2 miles              b. 3.8 miles              c. 2.2 miles              d. 2.5 miles

- D 20. Write the polynomial in standard form.

$$4g - g^3 + 3g^2 - 2$$

- a.  $-2 + 4g + 3g^2 - g^3$                       c.  $3g^3 - g^2 + 4g - 2$   
 b.  $g^3 - 3g^2 + 4g - 2$                       d.  $-g^3 + 3g^2 + 4g - 2$

Simplify the difference.

- A 21.  $(4w^2 - 4w - 8) - (2w^2 + 3w - 6)$

- a.  $2w^2 - 7w - 2$                       c.  $2w^2 - 1w - 14$   
 b.  $6w^2 - 1w - 14$                       d.  $6w^2 + 7w + 2$

T

22. Simplify the sum.

$$(4u^3 + 4u^2 + 2) + (6u^3 - 2u + 8)$$

- a.  $10 - 2u + 4u^2 + 10u^3$   
 b.  $-2u^3 - 2u^2 + 4u - 10$

- c.  $-2u^3 + 4u^2 - 2u + 10$   
 d.  $10u^3 + 4u^2 - 2u + 10$

**Simplify the product.**

E

23.  $3p^4(4p^4 + 7p^3 + 4p + 1)$ 

- a.  $12p^8 + 3p^7 + 4p^5 + p^4$   
 b.  $12p^8 + 21p^7 + 12p^5 + 3p^4$

- c.  $7p^8 + 10p^7 + 7p^5 + 4p^4$   
 d.  $12p^{16} + 21p^{12} + 15p^4$

**Factor the polynomial.**

A

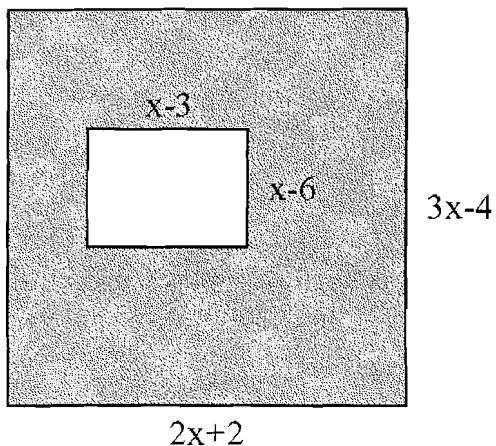
24.  $2x^3 + 4x^2 + 8x$ 

- a.  $2x(x^2 + 2x + 4)$   
 b.  $2x(x + 2)(x + 4)$

- c.  $x(2x^2 + 4x + 8)$   
 d.  $2x^3 + 4x^2 + 8x$

**Essay**

25. Find the area of the shaded region. Show all your work.



$$(2x+2)(3x-4) - (x-3)(x-6)$$